



# LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA18 | Stoneleigh, Kenilworth and Burton Green

**Data appendix (LQ-001-018)**

Land quality

November 2013

ES 3.5.2.18.8

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# Appendix LQ-001-018

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# 1 Introduction

1.1.1 The land quality appendix for the Stoneleigh, Kenilworth and Burton Green community forum area (CFA) comprise:

- a summary of engagement undertaken (Section 2);
- detailed risk assessment (Section 3);
- inspection notes and other site data (Section 4);
- geological sites of special scientific interest (SSSI) and local geological sites (Section 5); and
- mining and minerals data (Section 6);

1.1.2 Maps referred to throughout the land quality appendix are contained in the Volume 5 land quality map book.



## 2 Engagement

- 2.1.1 Table 1 sets out the local authorities and other organisations that have been engaged with during the preparation of the land quality section of the environmental impact assessment (EIA) for Stoneleigh, Kenilworth and Burton Green study area, the types of information that have been provided to the assessment team and any specific concerns of those engaged with.

Table 1: Engagement on land quality issues undertaken for Stoneleigh, Kenilworth and Burton Green

<b>Local authority or other organisation</b>	<b>Information provided and/or specific concerns</b>
Warwick District Council	Consulted for information on land contamination (via email on 2 April 2013). The Council confirmed that it had no additional information on potentially contaminated areas and that any areas of contaminated land already redeveloped are remediated so as to make them suitable and safe for their proposed use.
Warwickshire County Council	Meeting held on 13 March 2013. Information on mineral sites (i.e. mineral safeguarding areas (MSA) within the study area of the Proposed Scheme) received as paper copies in November 2012 and digitally on 12 April 2013.
Environment Agency	Consulted for information on land contamination.



### 3 Detailed risk assessment

3.1.1 This appendix presents assessments for the higher risk potentially contaminated sites within the study area. For each site the following data is presented:

- baseline risk assessment;
- construction risk assessment;
- post-construction risk assessment; and
- assessment of temporary (construction) and permanent (post-construction) effects.

3.1.2 The sites assessed in this study area are set out in Table 2.

Table 2: Detailed risk assessment for areas assessed as potentially posing a contaminative risk for the Proposed Scheme

Area reference	Area name	Table nos.
18-05	Infilled pond	Table 3 to Table 6
18-06	Former nursery	Table 7 to Table 10
18-10	Infilled well	Table 11 to Table 14
18-11	Disturbed possibly infilled ground	Table 15 to Table 18
18-13	Former tanks	Table 19 to Table 22
18-21	Possible partially infilled pits	Table 23 to Table 26
18-23	Infilled pit	Table 27 to Table 30
18-29	Infilled quarry	Table 31 to Table 34
18-30	Infilled pit	Table 35 to Table 38
18-32	Infilled pond	Table 39 to Table 42
18-33	Dismantled railway	Table 43 to Table 46
18-34 and 18-35	Infilled wells	Table 47 to Table 50
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18-38	Infilled pond	Table 55 to Table 58
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18-45	Infilled pond	Table 71 to Table 74
18-47	Infilled pond	Table 75 to Table 78
18-48	Infilled pond	Table 79 to Table 82
18-49	Infilled well	Table 83 to Table 86
18-50	Infilled well	Table 87 to Table 90
18-51	Infilled pond	Table 91 to Table 94

<b>Area reference</b>	<b>Area name</b>	<b>Table nos.</b>
18-52 and 18-53	Infilled ponds	Table 95 to Table 98
18-57	Stoneleigh Park (industrial) with tanks	Table 99 to Table 102
18-58	New Kingswood Farm	Table 103 to Table 106
18-60	Dalehouse Farm	Table 107 to Table 110
18-63	Coventry to Leamington Spa Line	Table 111 to Table 114
18-70	Berkeswell Electricity substation	Table 115 to Table 118
18-73	Odnall End Farm	Table 119 to Table 122

3.1.3 Contaminant types included within the risk assessments are based on the Priority Contaminants Report CLR 8<sup>1</sup>. Although this report has been withdrawn by the Environment Agency, there has been no subsequent authoritative document to replace it.

3.1.4 The remainder of this appendix presents the risk assessment for the sites set out in Table 2.

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<sup>1</sup> DEFRA and Environment Agency (2002), CLR 8: Potential Contaminants for the Assessment of Land Contamination.

Table 3: 18-05 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface watercourses/surface water bodies	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Negligible	Very low
		Direct run-off from site	Unlikely	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

## Description

An infilled pond is situated to the north of Stone House Farm on the route of the Proposed Scheme which will be constructed in cutting. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are no residential properties within 250m. Bedrock is classified as a Principal aquifer and there are no superficial deposits recorded.

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Table 4: 18-05 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - surface watercourses/surface water bodies	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Negligible	Very low
		Direct run-off from site	Unlikely	Negligible	Very low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- during construction standard mitigation procedures will be in place in accordance with the Code of Construction Practice (CoCP)
- the area of the infilled pond will be crossed by the Proposed Scheme and any contaminated material encountered will be removed.  
there is unlikely to be a requirement for any remediation over and above the removal of contaminated material.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater.

Table 5: 18-05 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - surface watercourses/surface water bodies	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Negligible	Very low
		Direct run-off from site	Unlikely	Negligible	Very low
<b>Main Risk</b>	<b>Very low risk</b>				

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Table 6: 18-05 Infilled pond significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall Significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

Table 7: 18-06 Former nursery baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Former nursery  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to fuels, oils, metals and fertilisers and pesticides	Off-site farm workers	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface watercourses/surface water bodies	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Negligible	Very low
		Direct run-off from site	Unlikely	Negligible	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

## Description

A former nursery is situated within the area of land required for construction of the Proposed Scheme which will be constructed in cutting approximately 100m to the west of the former nursery. This former nursery was not shown on historical maps after 1905 and it is to be used for mitigation planting. A realistic and worst case scenario is assumed that the fertilisers and pesticides have been used at the nursery and a range of contaminants including fuel, oils and pesticides. There are farm buildings approximately 170m to the north of the former nursery. Bedrock is classified as a Principal aquifer and there are no superficial deposits recorded.

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Table 8: 18-06 Former nursery construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Former nursery  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to fuels, oils, metals and fertilisers and pesticides	Off-site farm workers	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface watercourses/surface water bodies	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Negligible	Very low
		Direct run-off from site	Unlikely	Negligible	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- during construction standard mitigation procedures will be in place in accordance with the CoCP
- as the former nursery area is to be used for mitigation planting it is not envisaged that there will be enough ground disturbance to change any of the above pathways and there is unlikely to be a requirement for any remediation given the low to very low risk.

Note

Construction workers have not been included in this assessment.

Table 9: 18-06 Former nursery post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Former nursery  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to fuels, oils, metals and fertilisers and pesticides	Off-site farm workers	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface watercourses/ surface water bodies	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Negligible	Very low
		Direct run-off from site	Unlikely	Negligible	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main Risk</b>	<b>Low risk</b>				

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Table 10: 18-06 Former nursery significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of adjacent human receptors (farm workers) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (farm workers) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (farm workers) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 11: 18-10 Infilled well baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

An infilled well is situated 15m to the east of the area of land required to construct the Proposed Scheme which will be constructed in cutting. A realistic and worst case scenario is assumed that the well was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. The nearest land required to construct the Proposed Scheme will be used for realignment of a highway. There are residential properties adjacent to the well and the nearest surface water receptor to the infilled well is the River Avon, located 170m to the north. Bedrock is classified as a Principal Aquifer and there are no Superficial Deposits recorded.

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Table 12: 18-10 Infilled well construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- although the infilled well should not be disturbed during construction as it is outside of the area required for construction migration may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 13: 18-10 Infilled well post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Note

-It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction, however, the infilled well (located 15m outside the area required for construction) is likely to remain so risks are considered to remain the same as at baseline.

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Table 14: 18-10 Infilled well significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of adjacent human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 15: 18-11 Disturbed, possibly infilled ground baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Disturbed, possibly infilled ground  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

**Description**

An area of disturbed, possibly infilled ground is situated adjacent to the area of land required to construct the Proposed Scheme which will be constructed in cutting. A realistic and worst case scenario is assumed that the land in this area has been manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated. There are residential properties of Stareton House/Park Farm House approximately 115m to the east of the area of disturbed or infilled ground. The River Avon lies approximately 110m to the north of the area of disturbed or infilled ground. Bedrock is classified as a Principal aquifer and there are no superficial deposits recorded. The area of land required to construct the Proposed Scheme adjacent to the area of disturbed or infilled ground will be used for the realignment of Stareton Road and construction of a new junction with an existing minor road.

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Table 16: 18-11 Disturbed, possibly infilled ground construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Disturbed, possibly infilled ground  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
		Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
	Controlled waters - River Avon	Direct run-off from site	Unlikely	Minor	Very low
		Property - buildings, infrastructure, their foundations and services	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- although the potentially disturbed or infilled ground should not be disturbed during construction as it is outside of the area required for construction, migration of contamination may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 17: 18-11 Disturbed, possibly infilled ground post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Disturbed, possibly infilled ground  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

## Note

It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction; however, the potentially disturbed or infilled ground (located adjacent to the area required for construction) is likely to remain.

Table 18: 18-11 Disturbed, possibly infilled ground significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Low	Low	Low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 19: 18-13 Former tanks baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Former tanks  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a fuel/oils	Off-site users of commercial properties and land	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of vapours into property	Unlikely	Medium	Low
<b>Main Risk</b>	<b>Low risk</b>				

**Description**

Two tanks were formerly situated 45m east of the area required to construct the Proposed Scheme which will be constructed in cutting. A realistic and worst case scenario is assumed that the tank was used to store fuels or oils and has leaked. There are commercial properties approximately 170m to the south east of the pond. The River Avon lies approximately 150m to the north of the site. Bedrock is classified as a Principal Aquifer and there are no Superficial Deposits recorded. The area of land required to construct the Proposed Scheme closest to the former tanks will be used for mitigation earthworks and utilities works.

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Table 20: 18-13 Former tanks construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Former tanks  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a fuel/oils	Off-site users of commercial properties and land	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of vapours into property	Unlikely	Medium	Low
<b>Main Risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the area of the former tanks will not be disturbed during construction as it lies outside of the area required for construction, however migration may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 21: 18-13 Former tanks post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Former tanks  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a fuel/oils	Off-site users of commercial properties and land	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of vapours into property	Unlikely	Medium	Low
<b>Main Risk</b>	<b>Low risk</b>				

## Note

It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction, however, the area of the former tanks will not have been disturbed during construction so the risks are considered to remain the same as at baseline.

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Table 22: 18-13 Former tanks significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Low	Low	Low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of vapours into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 23: 18-21 Possible partially infilled pits baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pits  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - Finham Brook - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

**Description**

Possible partially infilled pits are situated in the western area required to construct the Proposed Scheme which will be constructed in cutting. A realistic and worst case scenario is assumed that the pits were manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are residential properties of Dalehouse Farm approximately 100m to the south east. Finham Brook lies approximately 180m to the west of the infilled pits at its closest point, and there are ponds directly adjacent to the infilled pits. Bedrock is classified as a Principal aquifer and there are no superficial deposits recorded. The area of land required to construct the Proposed Scheme in which the infilled pits are located will be used for acoustic mitigation earthworks and for construction of the Proposed Scheme in cutting.

Table 24: 18-21 Possible partially infilled pits construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pits  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - Finham Brook - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the infilled pits will be disturbed during construction and any contamination encountered will be removed. During disturbance of the infilled material there may be some remobilisation of contaminants providing an increased probability of leaching to groundwater and lateral migration within groundwater;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 25: 18-21 Possible partially infilled pits post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pits  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - Finham Brook - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Note

It is assumed that any contaminated material encountered will be removed during construction but some of the area of infilling will only be used for mitigation planting which will involve minimal ground disturbance. Some areas of infilling are therefore likely to remain undisturbed.

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Table 26: 18-21 Possible partially infilled pits significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Low	Minor adverse	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Low	Low	Low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Low	Low	Low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas and vapours in property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible</b>

Table 27: 18-23 Infilled pit baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

**Description**

An infilled pit is located to the east of Crackley Wood, approximately 15m from the area of land required to construct the Proposed Scheme which will be constructed in cutting. A realistic and worst case scenario is assumed that the pits were manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are several ponds within 250m of the site and the groundwater within bedrock underlying the site is classified as a Principal aquifer. There are no recorded Superficial Deposits. The area of land required to construct the Proposed Scheme closest to the infilled pit will be used for bridleway realignment and hedgerow enhancement.

Table 28: 18-23 Infilled pit construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
Main risk	Low risk				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- infilled pit will not be disturbed during construction but any contaminated material encountered within the area of land required to construct the Proposed Scheme will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. It is considered that there may be a slightly increased risk of mobilisation and leaching of existing contamination to groundwater during construction.

Table 29: 18-23 Infilled pit post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Note

The infilled pit will not have been disturbed during construction and will remain post-construction so the risks are considered to remain the same as those at baseline.

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Table 30: 18-23 Infilled pit significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas and vapours in property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 31: 18-29 Infilled quarry baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled quarry  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site receptors	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very Low
		Direct run-off from site	Unlikely	Minor	Very Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

The infilled quarry is situated adjacent west of the area required to construct the Proposed Scheme which will be constructed in tunnel. A realistic and worst case scenario is assumed that the quarry was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are residential properties directly adjacent to the quarry, and some residential gardens appear to be located on the site of the infilled quarry. There is a surface water drain within 30m of the infilled quarry. Bedrock underlying the site is classified as a Principal Aquifer; there are no Superficial Deposits recorded. The area of land required to construct the Proposed Scheme closest to the infilled quarry will be used for the realignment of Kenilworth Greenway and a footpath.

Table 32: 18-29 Infilled quarry construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled quarry  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site receptors	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very Low
		Direct run-off from site	Unlikely	Minor	Very Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the infilled quarry will not be disturbed during construction but should there have been any migration of contamination from this source, all contamination encountered in the area required to construct the Proposed Scheme will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 33: 18-29 Infilled quarry post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled quarry  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site receptors	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very Low
		Direct run-off from site	Unlikely	Minor	Very Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

## Note

It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction. However, the infilled quarry will still be present post construction therefore risks remain same as at baseline.

Table 34: 18-29 Infilled quarry significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of on-site human receptors by direct contact and ingestion of contaminated waters	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site humans to contamination by inhalation of ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very Low	Very Low	Very Low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very Low	Very Low	Very Low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 35: 18-30 Infilled pit baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
		Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
	Controlled waters - pond	Direct run-off from site	Unlikely	Minor	Very low
		Property - infrastructure, services	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
Main risk	<b>Low risk</b>				

## Description

An infilled pit is located adjacent to Hob Lane, approximately 40m from the area of land required to construct the Proposed Scheme which will be constructed in tunnel. A realistic and worst case scenario is assumed that the pit has been manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are present. Residential properties and other buildings of Burton Green Farm are present within 110m of the infilled pit and residential properties off Red Lane are located approximately 70m from the infilled pit. A pond lies approximately 70m to the south of the infilled pit and groundwater within the bedrock underlying the site is classified as a Principal aquifer. Overlying superficial deposits are classified as unproductive strata. The area of land required to construct the Proposed Scheme closest to the infilled pit will be used for construction of an access route.

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Table 36: 18-30 Infilled pit construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the infilled pit will not be disturbed during construction but any contaminated material encountered within the area of land required to construct the Proposed Scheme will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 37: 18-30 Infilled pit post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
Main risk	Low risk				

## Note

The infilled pit will not have been disturbed during construction and will remain post-construction so the risks are considered to remain the same as those at baseline.

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Table 38: 18-30 Infilled pit significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas and vapours in property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 39: 18-32 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

**Description**

An infilled pond is located to the west of Hob Lane, approximately 50m from the area of land required to construct the Proposed Scheme which will be constructed in tunnel. A realistic and worst case scenario is assumed that the pond has been manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are present. Residential properties and other buildings of Burton Green Farm are present within 100m of the infilled pond and residential properties off Red Lane are located approximately 120m from the infilled pond. There is a pond located 125m to the south east of the infilled pond. Groundwater within the bedrock underlying the site is classified as a Principal aquifer; superficial deposits are classified as unproductive strata. The area of land required to construct the Proposed Scheme closest to the infilled pit will be used for construction of an access route.

Table 40: 18-32 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the infilled pond will not be disturbed during construction but any contaminated material encountered within the area of land required to construct the Proposed Scheme will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 41: 18-32 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas and vapours in property/enclosed spaces	Unlikely	Medium	Low
Main risk	Low risk				

## Note

The infilled pit will not have been disturbed during construction and will remain post-construction so the risks are considered to remain the same as those at baseline.

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Table 42: 18-32 Infilled pond significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas and vapours in property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 43: 18-33 Dismantled railway line baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Dismantled Kenilworth to Balsall railway line  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to metals, hydrocarbons, asbestos, sulphates	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water.	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - pond - unnamed streams	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
Main risk	Low risk				

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### Description

The route of the former railway (dismantled sometime between 1968 and 1977, and now in use as Kenilworth Greenway) is joined by the Proposed Scheme, which will be constructed in cutting, in Burton Green. The Proposed Scheme follows the dismantled railway line in cutting or in green tunnel from Burton Green almost to the northern end of the study area. Potential contaminants associated with the dismantled railway line include fuel, creosote and other organic or inorganic contaminants. There are residential properties directly adjacent to the dismantled railway. There is a pond and other unnamed streams within 250m of the site. Bedrock underlying the site is classified as a Principal aquifer and superficial deposits are classed as unproductive strata.

Table 44: 18-33 Dismantled railway line construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Dismantled Kenilworth to Balsall railway line	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
Existing contaminants in the soils and groundwater at the site, potentially including but not limited to metals, hydrocarbons, asbestos, sulphates	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water.	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Likely	Minor	Moderate/low
	Controlled waters - pond - unnamed streams	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
Main risk	Moderate/low risk				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the dismantled railway will be disturbed during construction and any contaminated material removed. As a result of the disturbance, the risk to the Principal aquifer has been increased;
- remediation will be undertaken if required which is likely to involve the removal of any contaminated material encountered within the area required to construct the Proposed Scheme; and
- during remediation and construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. It is considered that there may be a slightly increased risk of mobilisation and leaching of existing contamination to groundwater during construction.

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Table 45: 18-33 Dismantled railway line post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Dismantled Kenilworth to Balsall railway line  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to metals, hydrocarbons, asbestos, sulphates	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water.	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer	Unlikely	Minor	Very low
	Controlled waters - pond - unnamed streams	Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
<b>Main risk</b>	<b>Very low risk</b>				

Note

Through the construction process a large proportion of the potential contamination will have been removed from dismantled railway area reducing the risks to the identified receptors.

Table 46: 18-33 Dismantled railway line significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of on-site human receptors by direct contact and ingestion of contaminated waters	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site humans to contamination by inhalation of volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall Significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

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Table 47: 18-34 & 18-35 Infilled wells baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled wells  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - pond - drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

Description

There are two infilled wells at Burton Green situated in the eastern area of land required to build the Proposed Scheme, which will be constructed in tunnel in both locations. A realistic and worst case scenario is assumed that the wells were manually infilled with waste and a range of contaminants including leachate and are associated with the infilled ground. There are residential properties adjacent to the area of land required to build the Proposed Scheme and adjacent to both wells. A drain and a pond are located approximately 125m from the infilled wells. Bedrock is classified as a Principal aquifer and superficial deposits are classified as unproductive strata.

Table 48: 18-34 &amp; 18-35 Infilled wells construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled wells	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - pond - drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the infilled wells are likely to both be disturbed during construction, and should contaminated material/water be encountered it will remediated or removed. During construction there is the potential to remobilise contaminants temporarily increasing the probability of leaching to the underlying aquifer.
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

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Table 49: 18-34 & 18-35 Infilled wells post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled wells  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - pond - drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Very low
<b>Main risk</b>	<b>Very low risk</b>				

Note

It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction.

Table 50: 18-34 &amp; 18-35 Infilled wells significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of on-site human receptors by direct contact and ingestion of contaminated waters	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site humans to contamination by inhalation of ground-gas and volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Very low	Negligible	Minor beneficial
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall Significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

Table 51: 18-37 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

An infilled pond is situated in the west of the area of land required to build the Proposed Scheme which will be constructed in retained cutting approximately 65m to the east of the infilled pond. This area will be used for utilities works. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and gas are associated. There are no buildings within 250m of the infilled pond. There are two ponds within 250m of the infilled pond. Bedrock is classified as a Principal aquifer and superficial deposits are classed as unproductive strata.

Table 52: 18-37 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into enclosed spaces	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the area of the infilled pond will not be disturbed during construction;
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 53: 18-37 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into enclosed spaces	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

Note

It is assumed the infilled pond will remain post-construction so the risks are considered to remain the same as at baseline.

Table 54: 18-37 Infilled pond significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Low	Low	Low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into enclosed spaces	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible</b>	<b>Negligible</b>

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Table 55: 18-38 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface waters	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

Description

An infilled pond is situated in the east of the area of land required to build the Proposed Scheme which will be constructed in retained cutting approximately 1355m to the west of the infilled pond. This area will be used for construction of an ATFS and works to the existing electricity substation at Burton Green. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and gas are associated. The nearest building of the existing substation lies approximately 60m from the infilled pond. There are no surface water receptors within 250m. Bedrock is classified as a Principal aquifer and superficial deposits are classed as unproductive strata.

Table 56: 18-38 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/Low
	Controlled waters - surface waters	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Moderate/Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the area of the infilled pond will be disturbed during construction and any contaminated material encountered will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater within the Principal aquifer during construction

Table 57: 18-38 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Very low
Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
		Migration and accumulation of ground-gas into enclosed spaces	Unlikely	Medium	Very low
<b>Main risk</b>	<b>Very low risk</b>				

## Note

It is assumed that all contaminated material encountered within the land required to construct the Proposed Scheme will have been removed during construction.

Table 58: 18-38 Infilled pond significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into enclosed spaces	Low	Low	Very low	Negligible	Minor beneficial
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall Significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

Table 59: 18-39 Infilled pit baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

An infilled pit is situated on the site of Burton Green electricity substation in the east of the area of land required to build the Proposed Scheme which will be constructed in retained cutting. This area will be used for the realignment of existing electricity pylons. A realistic and worst case scenario is assumed that the pit was manually infilled with waste and a range of contaminants including leachate and gas are associated. The nearest surface water receptor to the infilled pit is a pond approximately 115m to the south-west. Bedrock is classified as a Principal aquifer and superficial deposits are classed as unproductive strata.

Table 6o: 18-39 Infilled pit construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pit  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	<b>Moderate/Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the area of the infilled pond may be disturbed during construction (realignment of existing pylons) and any contaminated material encountered will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater within the Principal aquifer during construction

Table 61: 18-39 Infilled pit post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pit	Off-site users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - infrastructure, services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Very low
<b>Main risk</b>	<b>Very low risk</b>				

## Note

It is assumed that all contaminated material encountered within the land required to construct the Proposed Scheme will have been removed during construction.

Table 62: 18-39 Infilled pit significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of on-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site human receptors (commercial) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/Low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Very low	Negligible	Minor beneficial
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall Significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

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Table 63: 18-40 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Negligible	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Off-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

Description

An infilled pond is situated on the site of the existing Burton Green electricity substation in the east of the area of land required to build the Proposed Scheme which will be constructed in retained cutting. This area will be used for utilities works. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and gas are associated. There is electricity generation infrastructure directly adjacent to the infilled pond, and the nearest building is approximately 160m to the north-east. A pond is located approximately 150m to the south of the infilled pond. Bedrock is classified as a Principal aquifer and superficial deposits are classed as unproductive strata.

Table 64: 18-40 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Negligible	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Off-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the area of the infilled pond may be disturbed during construction and any contaminated material encountered will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater within the Principal aquifer during construction

Table 65: 18-40 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	On-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Negligible	Very low
		Inhalation of ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Off-site commercial users	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

## Note

The entirety of the infilled pond may not have been disturbed during construction so there is the potential for contaminated material to remain. Risks are therefore considered to remain the same as at baseline.

Table 66: 18-40 Infilled pond significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of on-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site human receptors (commercial) to contamination by inhalation of ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by inhalation of migrating ground-gas and volatile vapours from migrating contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Very low	Low	Very low	Minor adverse	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall Significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible</b>

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Table 67: 18-44 Infilled ponds baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled ponds  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site receptors (residential)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - drain	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	<b>Low risk</b>				

Description

Infilled ponds are situated directly adjacent to the area of land required to build the Proposed Scheme which will be constructed in retained cutting. A realistic and worst case scenario is assumed that the ponds were manually infilled with waste and a range of contaminants including leachate and are associated. Properties off Waste Lane are located approximately 175m to the north of the infilled pond. A surface water drain lies directly adjacent to the infilled ponds. Bedrock is classified as a Principal aquifer and superficial deposits are classed as unproductive strata. The area of land required to construct the Proposed Scheme closest to the infilled ponds is associated with the realignment of a Public Right of Way.

Table 68: 18-44 Infilled ponds construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pit	Off-site receptors (residential)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site receptors (residential)	Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
	Off-site receptors (residential)	Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- there is anticipated to be only minimal disturbance of the area of the infilled pit associated with works to the Public Right of Way so there is considered to be no change in risk to the identified receptors;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 69: 18-44 Infilled ponds post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pit	Off-site receptors (residential)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site receptors (residential)	Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
	Off-site receptors (residential)	Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

Note

The area of the infilled ponds are likely to have suffered only minimal disturbance during construction so the risks are considered to remain the same as at baseline.

Table 70: 18-44 Infilled ponds significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors to contamination by inhalation of migrating ground-gas and volatile vapours from migrating contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Low	Low	Low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Low	Low	Low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 71: 18-45 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond	Users of off-site residential properties  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water.	Low likelihood	Minor	Low
		Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
		Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
		Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

There is an infilled pond situated adjacent east of the area of land required to construct the Proposed Scheme which will be constructed in retained cutting. The area of land required to construct the scheme closest to the infilled pond will be used for earthworks associated with cutting formation. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and gas are associated. There are residential properties approximately 100m to the north-east of the infilled pond. The nearest surface water is a pond located 160m to the north-east of the Proposed Scheme. Bedrock is classified as a Principal aquifer and overlying superficial deposits are classified as unproductive strata.

Table 72: 18-45 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Users of off-site residential properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water.	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- although the infilled pond should not be disturbed during construction as it is outside of the area required for construction migration may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 73: 18-45 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Users of off-site residential properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water.	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
		Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
	Controlled waters - pond	Direct run-off from site	Unlikely	Minor	Very low
		Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

## Note

As the pond is situated outside the area of land required to construct the Scheme and is unlikely to be disturbed, should there have been any migration of contamination then material encountered will be removed during construction so there should be no residual contamination within the area required for construction. The pond will remain at post-construction and so risk remains same as at baseline.

Table 74: 18-45 Infilled pond significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 75: 18-47 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

There is an infilled pond situated adjacent east of the area of land required to build the Proposed Scheme which will be constructed in retained cutting. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. The closest parts of the area of land required to construct the Proposed Scheme will be used for electricity pylon realignment and the realignment of Waste Lane with associated construction of a new overbridge. There are residential properties within approximately 75m of the infilled pond. The nearest surface water receptor to the infilled pond is a pond approximately 100m to the north-west. Bedrock is classified as a Principal aquifer and superficial deposits are absent.

Table 76: 18-47 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- although the infilled pond should not be disturbed during construction as it is outside of the area required for construction migration may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 77: 18-47 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - pond	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Note

-As the pond is situated outside the area of land required to construct the Scheme it is unlikely to be disturbed during construction. Should there have been any migration of contamination then material encountered will be removed during construction so there should be no residual contamination within the area required for construction. However, the infilled pond will remain post-construction so the risk is considered to remain the same as at baseline.

Table 78: 18-47 Infilled pond significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 79: 18-48 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

There is an infilled pond situated directly to the west of the area of land required to build the Proposed Scheme which will be constructed in retained cutting. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. The closest part of the area of land required to construct the Proposed Scheme will be used for an access road, and the realignment of Waste Lane with associated overbridge construction. There are residential and commercial properties of Little Beanit Farm within 20m of the infilled pond. The nearest surface water receptor to the infilled pond is a surface water drain located approximately 180m to the south-west. Bedrock is classified as a Principal aquifer and overlying superficial deposits are classified as unproductive strata.

Table 8o: 18-48 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- although the infilled pond should not be disturbed during construction as it is outside of the area required for construction migration may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 81: 18-48 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Note

As the pond is situated outside the area of land required to construct the Scheme it is unlikely to be disturbed during construction. Should there have been any migration of contamination then material encountered will be removed during construction so there should be no residual contamination within the area required for construction. However, the infilled pond will remain post-construction so the risk is considered to remain the same as at baseline.

Table 82: 18-48 Infilled pond significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 83: 18-49 Infilled well baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Description

An infilled well is situated adjacent west of the area of land required to construct the Proposed Scheme which will be constructed in retained cutting. A realistic and worst case scenario is assumed that the well was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are residential & buildings associated with a farm adjacent to the infilled well. A surface water drain lies approximately 220m to the south of the infilled well, and there are two ponds approximately 230m and 250m to the north. Bedrock is classified as a Principal aquifer and overlying superficial deposits are classified as unproductive strata.

Table 84: 18-49 Infilled well construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Low risk</b>				

## Appendix LQ-001-018 | Detailed risk assessment

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- although the infilled well should not be disturbed during construction as it is outside of the area required for construction migration may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 85: 18-49 Infilled well post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Main risk	Low risk				

## Note

-It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction; however, the infilled well (located adjacent to the area required for construction) is likely to remain undisturbed so the risks are considered to remain the same as at baseline.

Table 86: 18-49 Infilled well significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of adjacent human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible</b>	<b>Negligible</b>

Table 87: 18-50 Infilled well baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	<b>Low risk</b>				

## Description

An infilled well is situated within the area of land required to construct the Proposed Scheme which will be constructed in retained cutting. The area of land required to construct the Proposed Scheme in which the infilled well lies will be used for earthworks associated with cutting formation. A realistic and worst case scenario is assumed that the well was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are residential buildings and farm buildings of Odnall End Farm adjacent to the infilled well adjacent to the infilled well and residential buildings and farm buildings of Crabmill Farm within approximately 100m to the north-east. There are two ponds within 160m of the north-east of the infilled well and a surface water drain approximately 240m to the west of the infilled well. Bedrock is classified as a Principal aquifer and there are no superficial deposits.

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Table 88: 18-50 Infilled well construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - ponds - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the infilled well will be disturbed during construction and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater during construction due to the disturbance associated with the cutting. Odnau End Farm will be demolished during construction, but off site residential and commercial receptors will remain at Crabmill Farm.

Table 89: 18-50 Infilled well post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled well  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Users of off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - ponds - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Very low
Main risk	<b>Very low risk</b>				

## Note

It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination associated with the infilled well
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Table 90: 18-50 Infilled well significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of adjacent human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Very low	Negligible	Minor beneficial
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

Table 91: 18-51 Infilled pond baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

## Description

An infilled pond is situated in the west of the area of land required to build the Proposed Scheme which will be constructed in retained cutting. A realistic and worst case scenario is assumed that the pond was manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are residential and commercial properties within 100m of the infilled pond. The nearest surface water receptors are a drain approximately 130m to the west of the site and two ponds within 230m. Bedrock is classified as a Principal aquifer and superficial deposits are absent.

Table 92: 18-51 Infilled pond construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the area of the infilled pond will be disturbed during construction and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater during construction

Table 93: 18-51 Infilled pond post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled pond  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Very low
<b>Main risk</b>	<b>Very low risk</b>				

Note

As the pond will have been disturbed during construction, any contaminated material encountered will have been removed.

Table 94: 18-51 Infilled pond significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of off-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Very low	Negligible	Minor beneficial
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

Table 95: 18-52 and 18-53 Infilled ponds baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Infilled ponds  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Low risk				

## Description

Two infilled ponds are located in the eastern and west area of land required to construct the Proposed Scheme which will be constructed on embankment. A new surface water drain will be excavated directly adjacent to the infilled ponds. A realistic and worst case scenario is assumed that the ponds were manually infilled with waste and a range of contaminants including leachate and ground-(landfill) gas are associated with the infilled ground. There are residential and farm properties of Odnaull End Farm and Crabmill Farm approximately 170m to the south-east and 220m to the east of the infilled ponds. The nearest surface water receptor is a surface water drain within 50m of the two infilled ponds. Bedrock is classified as a Principal aquifer and superficial deposits are absent.

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Table 96: 18-52 and 18-53 Infilled ponds construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Infilled ponds  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low likelihood	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Low
Main risk	Moderate/low risk				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- there will be disturbance to the infilled ponds during construction; should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater during construction.

Table 97: 18-52 and 18-53 Infilled ponds post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Infilled ponds  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to a range of inorganic and organic contaminants, leachate and ground (landfill) gas.	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Off-site receptors (commercial)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - surface water drain	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
		Migration and accumulation of ground-gas into property	Unlikely	Medium	Very low

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Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
<b>Main risk</b>	<b>Very low risk</b>				

Note

The ponds will have been disturbed during construction and any contaminated material encountered will have been removed.

Table 98: 18-52 and 18-53 Infilled ponds significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of off-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Low	Low	Very low	Negligible	Minor beneficial
Discharge of contaminants to surface water by direct run-off from site	Low	Low	Very low	Negligible	Minor beneficial
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
Migration and accumulation of ground-gas into property	Low	Low	Very low	Negligible	Minor beneficial
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

Table 99: 18-57 Stoneleigh Park baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Stoneleigh Park  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to fuels, oils, pesticides.	Current site users (commercial)	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

## Description

Stoneleigh Park is situated on route and in the area of land required to build the Proposed Scheme, which will be constructed in cutting. There are tanks and electricity substations on the site and a realistic and worst case scenario is assumed that the tanks were used to store fuel and oil and will have leaked. A range of contaminants are potentially associated with the main operations at Stoneleigh Park. There are commercial properties onsite and offsite. The River Avon is directly adjacent to the north of Stoneleigh Park and there are several ponds within 250m of the site. Bedrock is classified as a Principal aquifer and superficial deposits are largely absent, although there is an isolated area of river terrace deposits present towards the north of the site which are classified as a Secondary A aquifer.

Table 100: 18-57 Stoneleigh Park construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Stoneleigh Park  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to fuels, oils, pesticides.	Current site users (commercial)	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - River Avon - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the ground within the area required for construction will be disturbed. This may remobilise existing contaminants increasing the probability of leaching to the underlying aquifer;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment. There is considered to be an increased risk to groundwater during construction.

Table 101: 18-57 Stoneleigh Park post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Stoneleigh Park  Existing contaminants in the soils and groundwater at the source, potentially including but not limited to fuels, oils, pesticides.	Current site users (commercial)	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site commercial properties	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Negligible	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Negligible	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Unlikely	Negligible	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - River Avon - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Low likelihood	Minor	Low
		Direct run-off from site	Low likelihood	Minor	Low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

## Note

It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction, however, the Park will still be present post-construction and so risks remain same as at baseline.

Table 102: 18-57 Stoneleigh Park significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of on-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of on-site human receptors (commercial) by direct contact and ingestion of contaminated waters	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site humans (commercial) to contamination by inhalation of volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (commercial) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Low	Minor adverse	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Low	Low	Low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Low	Low	Low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible</b>

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Table 103: 18-58 New Kingswood Farm baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
New Kingswood Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

Description

New Kingswood Farm is situated on route of the Proposed Scheme, which will be constructed in cutting at this location. A realistic and worst case scenario is assumed that farm vehicles and pesticides have been used and a range of contaminants including fuels and oils are associated with the farmstead. A residential property of New Kingswood Farm is located 65m to the north-west of the farmstead buildings and there are other residential properties of Kingswood Darm approximately 170m to the east. There are several ponds within 250m of the farmstead. Bedrock is classified as a Principal aquifer and there are no superficial deposits recorded.

Table 104: 18-58 New Kingswood Farm construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
New Kingswood Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the farmstead is being demolished and should any contamination be present, all contaminated material will be removed from the site. There is the possibility that contaminants will be remobilised during construction increasing the potential for leaching to underlying groundwater;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 105: 18-58 New Kingswood Farm post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
New Kingswood Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Very low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Unlikely	Minor	Very low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Unlikely	Minor	Very low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
<b>Main risk</b>	<b>Very low risk</b>				

## Note

All of the farmstead buildings will have demolished during construction and any contamination that may have been encountered will have been removed.

Table 106: 18-58 New Kingswood Farm significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of on-site human receptors by direct contact and ingestion of contaminated waters	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site humans to contamination by inhalation of volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>

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Table 107: 18-60 Dalehouse Farm baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation	
Dalehouse Farm	Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
			Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
			Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
		Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
			Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
			Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
		Controlled waters - Principal bedrock aquifer - Secondary A aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal and Secondary A aquifers	Low likelihood	Minor	Low
		Controlled waters - Finham Brook - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
			Direct run-off from site	Unlikely	Minor	Very low
		Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>					

Description

Dalehouse Farm is situated either side of the Proposed Scheme, which will be constructed in embankment and cutting at this location. A realistic and worst case scenario is assumed that farm vehicles and pesticides have been used and a range of contaminants including fuels and oils are associated with the farmstead. There are residential properties located within 250m of the east of the site off Dalehouse Lane. Finham Brook lies 80m to the south-east of the site and there are a number of ponds within 250m of the farmstead. Bedrock is classified as a Principal aquifer and superficial deposits as a Secondary A aquifer.

Table 108: 18-60 Dalehouse Farm construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Dalehouse Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer - Secondary A aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal and Secondary A aquifers	Likely	Minor	Moderate/low
	Controlled waters - Finham Brook - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the ground between the farmstead buildings will be disturbed and should any contamination be present, all contaminated material will be removed from the site. There is the possibility that contaminants will be remobilised during construction increasing the potential for leaching to underlying groundwater;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

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Table 109: 18-60 Dalehouse Farm post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Dalehouse Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer - Secondary A aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal and Secondary A aquifers	Low likelihood	Minor	Low
	Controlled waters - Finham Brook - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

Note

Any contaminated material encountered during construction will have been removed, but the farmstead will remain so the risks are considered to remain the same as at baseline.

Table 110: 18-60 Dalehouse Farm significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of on-site human receptors by direct contact and ingestion of contaminated waters	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site humans to contamination by inhalation of volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal and Secondary A aquifers.	Low	Moderate/low	Low	Minor adverse	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible</b>

Table 111: 18-63 Coventry to Leamington Spa railway line baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Coventry to Kenilworth railway line	Off-site residents  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to metals, hydrocarbons, asbestos, sulphates	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
		Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
	Controlled waters - tributary of Finham Brook - ponds	Direct run-off from site	Unlikely	Minor	Very low
		Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

**Description**

The existing Coventry to Kenilworth railway line (present since the late 1800s) is intersected by the Proposed Scheme, which will be in cutting at this location, to the north-east of Crackley. A range of contaminants including fuels, oils and other organic and inorganic contaminants are associated with existing railway lines. There are residential properties at Milburn Grange approximately 110m to the south-west of the site. A tributary of Finham Brook lies 250m to the south-west of the site and there are a number of ponds within 250m of the site. Bedrock is classified as a Principal Aquifer and there are no superficial deposits recorded.

Table 112: 18-63 Coventry to Leamington Spa railway line construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Coventry to Kenilworth railway line	Off-site residents  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to metals, hydrocarbons, asbestos, sulphates	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
		Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Likely	Minor	Moderate/low
		Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
		Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the Proposed Scheme will cut underneath the railway so there is a chance that contamination present may be disturbed; any contaminated material encountered will be removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

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Table 113: 18-63 Coventry to Leamington Spa railway line post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Coventry to Kenilworth railway line  Existing contaminants in the soils and groundwater at the site, potentially including but not limited to metals, hydrocarbons, asbestos, sulphates	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - Finham Brook - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

Note

Railway line will still be present post-construction so risks remain same as those at baseline.

Table 114: 18-63 Coventry to Leamington Spa railway line significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of adjacent human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Moderate/low	Low	Minor adverse	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible</b>

Appendix LQ-001-018 | Detailed risk assessment

Table 115: 18-64 Berkswell electricity substation baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Electricity substation	On-site users of commercial properties (associated with the substation)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
Existing contaminants in the soils and groundwater at the site, potentially including oils.		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

Description

Berkswell Electricity Substation is situated adjacent to the area of land required to build the Proposed Scheme, which will be constructed in retained cutting. The area of land required to construct the Proposed Scheme will be used for utilities works. A realistic and worst case scenario has been assumed that transformer oils have leaked or been spilled to ground during operation or maintenance and a range of contaminants including oils are associated with the substation. There are commercial properties associated with the substation. There are several ponds within 250m of the substation. Bedrock is classified as a Principal aquifer and the overlying superficial deposits are classed as unproductive strata.

Note

The bedrock at the site is classified as a Principal Aquifer; however the overlying Oadby Member (diamictite) is classified as unproductive strata which should therefore afford some protection to the Principal aquifer from leached contaminants.

Table 116: 18-64 Berkeswell electricity substation construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Electricity substation  Existing contaminants in the soils and groundwater at the site, potentially including oils.	On-site users of commercial properties (associated with the substation)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- although the substation should not be disturbed during construction as it is outside of the area required for construction migration may have occurred and should contaminated material/water be encountered it will remediated or removed;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment.

Table 117: 18-64 Berkeswell electricity substation post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Electricity substation	On-site users of commercial properties (associated with the substation)	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
Existing contaminants in the soils and groundwater at the site, potentially including oils.		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal bedrock aquifer	Low likelihood	Minor	Low
	Controlled waters - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

## Note

It is assumed that any contaminated material encountered will be removed during construction so there should be no residual contamination within the area required for construction, however, the substation is likely to remain and so risks here are same as those at baseline.

Table 118: 18-64 Berkeswell electricity substation significance of effect assessment

<b>Contaminant linkage</b>	<b>Baseline risk</b>	<b>Construction risk</b>	<b>Post-construction risk</b>	<b>Construction significance</b>	<b>Post-construction significance</b>
Exposure of on-site human receptors (commercial) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of on-site human receptors (commercial) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of on-site human receptors (commercial) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal bedrock aquifer	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>		
<b>Overall significance</b>				<b>Negligible</b>	<b>Negligible</b>

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Table 119: 18-73 Odnauall End Farm baseline conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Odnauall End Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in contaminated waters	Unlikely	Minor	Very low
		Inhalation of volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal aquifer	Low likelihood	Minor	Low
	Controlled waters - drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Low risk</b>				

Description

Odnauall End Farm is located in the east of the area of land required to construct the Proposed Scheme, which will be constructed in retained cutting at this location. In this area, works will include highway realignment, cutting earthworks and planting. All current farm buildings at this location will be demolished. A realistic and worst case scenario is assumed that farm vehicles and pesticides have been used and a range of contaminants including fuels and oils are associated with the farmstead. Residential and farm buildings of Crabmill Farm are located 75m to the north-east of the site. There is a surface water drain approximately 200m to the south-west of the site and a pond 100m to the north-east. Bedrock is classified as a Principal aquifer and superficial deposits are absent from this area.

Table 120: 18-73 Odnaull End Farm construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at construction with mitigation
Odnaull End Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Not present during construction		
		Direct contact and ingestion of contaminants in contaminated waters	Not present during construction		
		Inhalation of volatile vapours from contaminated soil/water	Not present during construction		
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Low likelihood	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Low likelihood	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal aquifer	Likely	Minor	Moderate/low
	Controlled waters - drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Low likelihood	Negligible	Very low
<b>Main risk</b>	<b>Moderate/low risk</b>				

The above risk assessment assumes that the below mitigation measures will be applied during construction:

- the ground will be disturbed and should any contamination be present, all contaminated material will be removed from the site. There is the possibility that contaminants will be remobilised during construction increasing the potential for leaching to underlying groundwater;
- it is unlikely that remediation over and above the removal of contaminated material will be required; and
- during construction standard mitigation procedures will be in place in accordance with the CoCP.

Note

Construction workers have not been included in this assessment, nor have site users because all buildings of Odnaull End Farm will be demolished.

Appendix LQ-001-018 | Detailed risk assessment

Table 121: 18-73 Odnauall End Farm post-construction conceptual site model and qualitative risk assessment

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction with mitigation
Odnauall End Farm  Existing contaminants in the soils at the farmstead, potentially including but not limited fuels, oils and pesticides.	Current site users	Direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Not present during construction		
		Direct contact and ingestion of contaminants in contaminated waters	Not present during construction		
		Inhalation of volatile vapours from contaminated soil/water	Not present during construction		
	Off-site residents	Direct contact, ingestion and inhalation of contaminants in windblown soil-derived dust	Unlikely	Minor	Low
		Direct contact and ingestion of contaminants in migrating contaminated waters	Unlikely	Minor	Very low
		Inhalation of migrating volatile vapours from contaminated soil/water	Unlikely	Minor	Low
	Controlled waters - Principal bedrock aquifer	Leaching of contaminants from soil to groundwater and vertical and lateral migration in Principal aquifer	Unlikely	Minor	Very low
	Controlled waters - drain - ponds	Lateral migration of contaminants in groundwater and discharge as base flow	Unlikely	Minor	Very low
		Direct run-off from site	Unlikely	Minor	Very low
	Property - buildings, infrastructure, their foundations and services	Direct contact of property with contaminants in soil and surface water/groundwater	Unlikely	Negligible	Very low
<b>Main risk</b>	<b>Very low risk</b>				
<b>Note</b>	Any contaminated material encountered during construction will have been removed from the area of land required to construct the Proposed Scheme and the farm will no longer be present.				

Table 122: 18-73 Odnall End Farm significance of effect assessment

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil and soil-derived dust	Low	n/a	n/a	n/a	n/a
Exposure of on-site human receptors by direct contact and ingestion of contaminated waters	Very low	n/a	n/a	n/a	n/a
Exposure of on-site humans to contamination by inhalation of volatile vapours from contaminated soil/water	Low	n/a	n/a	n/a	n/a
Exposure of off-site human receptors (residents) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by direct contact and ingestion of contaminants in migrating contaminated water	Very low	Very low	Very low	Negligible	Negligible
Exposure of off-site human receptors (residents) to contamination by inhalation of migrating volatile vapours from contaminated soil/water	Low	Low	Low	Negligible	Negligible
Leaching of contaminants from soil to groundwater and vertical and lateral migration in groundwater in Principal aquifer.	Low	Moderate/low	Very low	Minor adverse	Minor beneficial
Lateral migration of contaminants in groundwater and discharge to surface waters as base flow	Very low	Very low	Very low	Negligible	Negligible
Discharge of contaminants to surface water by direct run-off from site	Very low	Very low	Very low	Negligible	Negligible
Direct contact of property with contaminants in soil and surface water/groundwater	Very low	Very low	Very low	Negligible	Negligible
<b>Main risk</b>	<b>Low</b>	<b>Moderate/low</b>	<b>Very low</b>		
<b>Overall significance</b>				<b>Negligible to minor adverse</b>	<b>Negligible to minor beneficial</b>



## 4 **Inspection notes and other site information**

4.1.1 There were no sites identified as a priority for inspection in the Stoneleigh, Kenilworth and Burton Green study area.



## 5 Geological SSSI and local geological sites

5.1.1 This appendix presents the following data:

- citation data for geological sites of special scientific interest (SSSI);
- citation data for local geological sites (LGS), formerly called regionally important geological sites (RIGS); and
- any other relevant site data.

5.1.2 There are no geological SSSI or local geological sites in the Stoneleigh, Kenilworth and Burton Green study area.



## 6 Mining and minerals data

- 6.1.1 This appendix presents the following data relating to mining and minerals information:
- details of planning data for minerals sites;
  - lists of marl pits in each study area; and
  - data from The Coal Authority.
- 6.1.2 Table 123 provides details of information received from the Coal Authority that relates to the study area. These documents are appended to this report.

Table 123: Information received from the Coal Authority

Site	Document details	No. pages
Daw Mill Colliery	Letter received 17 May 2012	4
Daw Mill Colliery	License extension	2
Daw Mill Colliery	Plan of extension area and current licence area April 2012	1



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Web: [www.coal.decc.gov.uk/services/planning](http://www.coal.decc.gov.uk/services/planning)

Mr Peter Miller – Head of Environment  
High Speed Two (HS2) Ltd

[By Email Only: [HS2EIASMConsultation@hs2.gsi.gov.uk](mailto:HS2EIASMConsultation@hs2.gsi.gov.uk)]

17 May 2012

Dear Mr Miller

### **HS2 Draft Scope and Methodology for HS2 Environmental Impact Assessment**

Thank you for your consultation letter of the 4 April 2012 seeking the views of The Coal Authority on the above.

The Coal Authority notes and welcomes that previous our comments made in July 2011 have been positively considered and taken into account in Section 11, Land Quality of this current consultation scoping methodology report.

#### **National Coal Resources**

As you are aware the broad direction of the HS2 line passes through the Oxfordshire and Warwickshire coalfield which contains coal resources at varying depths. The majority of the coal resource is at depth with only a limited area of more shallow resources which could be accessed using surface mining methods.

Coal is a nationally important mineral; most recently confirmed by the National Planning Policy Framework 2012. Coal mining not only provides indigenous coal resources for to help with the security of the nation's energy needs, but is also a significant contributor to the surrounding local economies.

Within the proposed HS2 line there is an existing commercial underground coal mine, Daw Mill Colliery, which has a current licence to operate from 1994 to 2093. The attached plan illustrates the extent of the current licensed area (pink) together with the extension application (green) which has recently been submitted.

The interaction of a surface and a sub-surface land use within the same vertical plane clearly has the ability to adversely affect one another. In this context the indicative route for phase 2 of HS2 has the potential to adversely affect the viability of the commercial operations of Daw Mill Colliery leading to the operational sterilisation of deep coal resources.

The EIA process does need to consider this potential coal resource sterilisation by HS2 and its associated infrastructure. Avoiding the sterilisation of minerals resources by permanent, non-mineral development is a long standing objective of national planning policy.

The geological information to inform the consideration of the impact and sterilisation of national and local mineral resources can be obtained from the British Geological Survey.

The EIA ultimately needs to determine the significance of the impact upon the national coal resources together with the ability for the current and established colliery to continue operating. It is pleasing to note that this will be assessed using Tables 10 and 11 which already identify major mining and mineral resources are a highly sensitive receptor and the impact of their loss could be high.

Formulating a methodology for the assessment of this impact together with the necessary mitigation should be informed by the views of the commercial coal operators, perhaps through their trade association, the Confederation of UK Coal Producers (CoalPro), in addition to The Coal Authority, at the next stage of the EIA process.

A further issue which the EIA process needs to analyse is the broad potential for the use of the deeper coal resources within the vicinity of the HS2 route being explored for the emerging energy technology of underground coal gasification. Further discussion would be recommended both with the Department for Energy and Climate Change and The Coal Authority in this regard.

### Coal Mining Legacy and Public Safety Risks

It is welcomed that paragraph 11.4.5 recognises that the environmental legacy of mining will be explored within the assessment. Whilst this current consultation considers the route up to Birmingham which passes through the lower risk area as defined by The Coal Authority this matter will need more detailed consideration for the phase beyond Birmingham.

The Coal Authority holds detailed information on the scale, nature and distribution of coal mining legacy and this is available for the more detailed assessment of this aspect.

The following should be examined in order to establish the risks posed to the HS2 and consequently inform the mitigation strategy:

- The location and stability of abandoned mine entries;
- The extent and stability of shallow mine workings;

- Outcropping coal seams and unrecorded mine workings; and
- Hydrology, minewater and mine gas

Where the route is likely to pass through areas of coal mining legacy it is recommended that a meeting is held with The Coal Authority to review the mitigation strategy since managing the legacy of coal mining is a key public task and any works which intersect, enter, disturb any coal and coal mine workings will require the prior written permission of The Coal Authority. The current Scope and Methodology does not make any reference to this existing requirement, although this is more relevant for the phase to the north of Birmingham.

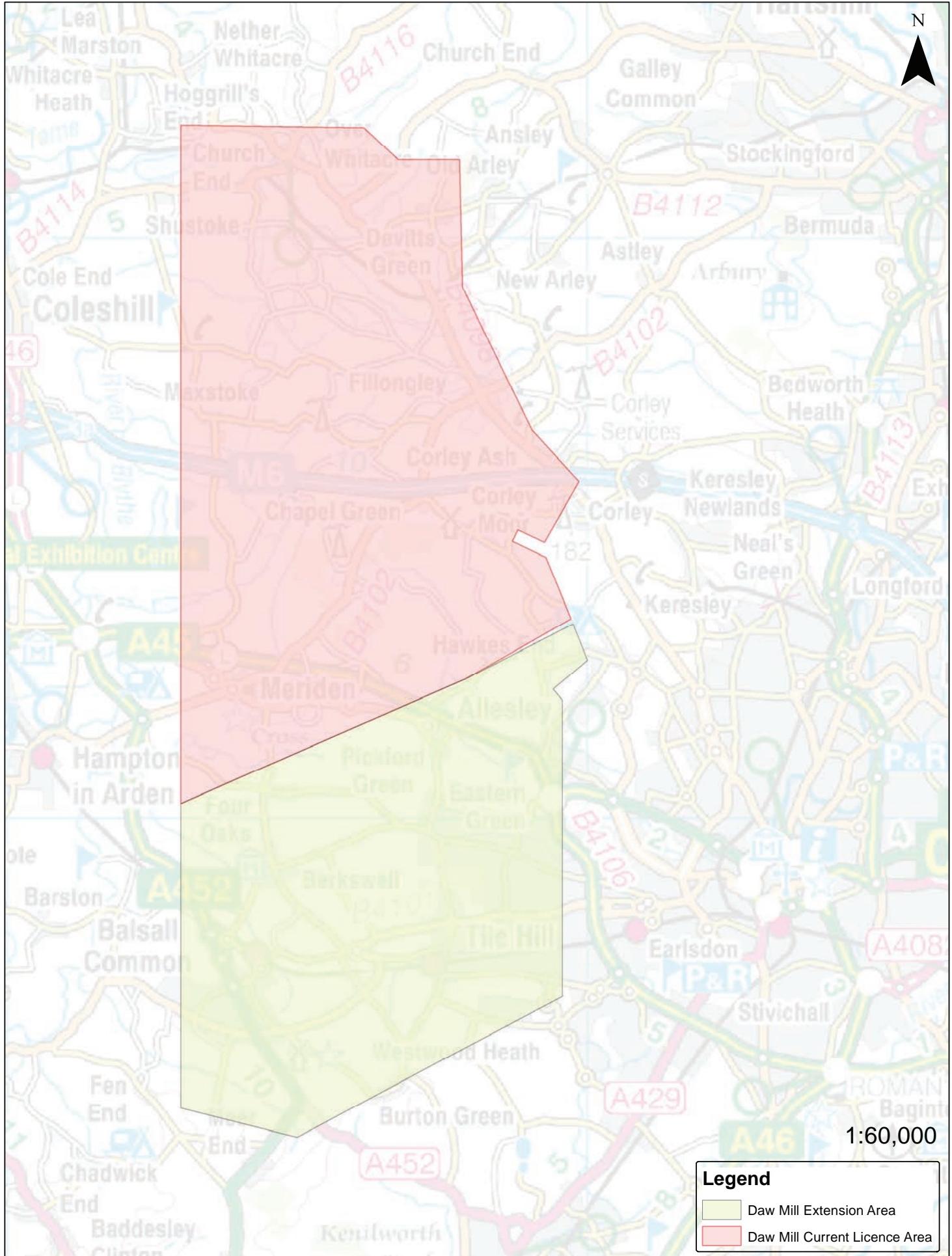
The Coal Authority looks forward to receiving further consultations on this proposal in due course.

Yours sincerely



**Miss Rachael A. Bust** B.Sc.(Hons), MA, M.Sc., LL.M., AMIEnvSci., MInstLM, MRTPI  
**Chief Planner / Principal Manager**  
**Planning and Local Authority Liaison**

Enc. The Coal Authority Daw Mill Colliery Licensed Area Plan (April 2012)



The  
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## Daw Mill Extension Area

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**VARIATION TO A PART II UNDERGROUND OPERATING LICENCE - GRANTED**  
**DAW MILL COLLIERY**

LICENCE NUMBER	CA11/DM/95/0009/S
LICENCE TYPE	Underground Operating Licence
LICENCE STATUS	Granted
DATE OF GRANT	31 <sup>st</sup> October 1994
DATE AUTHORISATION COMES INTO FORCE	31 <sup>st</sup> October 1994
IDENTITY OF PERSON TO WHOM LICENCE IS GRANTED	<b>UK COAL MINING LIMITED</b>
OTHER PERSONS ENTITLED TO MINE UNDER THE LICENCE	Any Coal-Mining Operations carried out under this Licence may be carried out through any officer, employee or contractor of the Licensee provided that the carrying out of those Coal Mining Operations remains under the control of the Licensee.
AREA TO WHICH AUTHORISATION RELATES	Details attached
DEPTH RESTRICTIONS ON AUTHORISED OPERATIONS	Details attached
OTHER RESTRICTIONS ON AUTHORISED OPERATIONS	Details attached
ANY AREA OF RESPONSIBILITY	Details attached
LICENCE PROVISIONS FOR EXPIRY OF AUTHORISATION	Details attached
LICENCE PROVISIONS FOR THE PURPOSES OF SECTION 58 OF THE 1994 ACT AND LICENCE CONDITIONS REQUIRING THE DISCLOSURE OF INFORMATION THAT MAY BE RELEVANT FOR THE PURPOSES OF SECTION 58 OF THE ACT	Without prejudice to Condition 14.3, all and any information from time to time provided by the Licensee to the Coal Authority pursuant to Conditions 5.2(a), 5.2(b), 5.2(e), 5.2(f), 5.2(g), 5.3, 8.1(a), 8.2, 9 or 12.4(c)(ii) may be disclosed by the Coal Authority for the purposes of replying to the coal-mining searches referred to in Condition 8.2 [Note: Copies of Conditions 14.3, 5.2(a), 5.2(b), 5.2(e), 5.2(f), 5.2(g), 5.3, 8.1(a), 8.2, 9 or 12.4(c)(ii) are available on request from the Coal Authority]. All and any information of the description specified above that is disclosed by the Coal Authority for the purposes specified in that Condition shall be treated, for the purposes of section 58 of the Coal Industry Act 1994, as information whose accuracy the Licensee has undertaken to secure.
LICENCE PROVISIONS FOR DETERMINING WHEN AREA CEASES TO BE THE AREA OF RESPONSIBILITY OF THE LICENCE HOLDER	At any time after the Coal Authority has given notice pursuant to Condition 15.2 the Coal Authority may give notice to the Licensee extinguishing the whole of the Area of Responsibility or such part or parts of the Area of Responsibility as may be specified by the Coal Authority in the notice (or further notice(s)).  Condition 15.2 provides that, where the Coal Authority has given a notice under Condition 15.1 requiring the Licensee to comply with a final enforcement order (or with a provisional enforcement order that has been confirmed) under Section 31 of the Coal Industry Act 1994, or requiring the remedy of certain breaches of obligations in relation to subsidence damage, and (in either case) the period specified in the notice for this to be done has expired without it having been done, the Coal Authority may give a further notice that the period has expired and this notice shall terminate the permission to carry out coal-mining operations contained in Condition 3.1 if this permission is still in force.
MODIFICATIONS TO LICENCE PARTICULARS	Extension of Licence area dated 7 <sup>th</sup> December 2012
DATE OF REVOCATION OF LICENCE OR OF AUTHORISATION TO MINE	-
ENFORCEMENT ORDER IN EXISTENCE (DETAILS ATTACHED IF APPLICABLE)	-
FORM OF SUBSIDENCE SECURITY	-
IDENTITY OF PERSON PROVIDING SECURITY	-
IDENTITY OF TRUSTEE	-
ADDRESS OF TRUSTEE	-



## **DAW MILL COLLIERY**

**Reference : CA11/DM/95/0009/S**

*Coal Industry Act 1994 Part II : Licence Register Details - Variation 7<sup>th</sup> December 2012*

### **3. VARIATION**

- 3.1 The Authority and the Licensee in accordance with Condition 18.1 of the Licence agree that :-
  - 3.1.1 Plan B and Plan C, as defined in the Licence, shall be substituted by the combined Plan D annexed to this Agreement and all references to Plan B and Plan C in the Licence shall be construed as referring to Plan D annexed to this Agreement;
  - 3.1.2 Schedule 2 of the Licence shall be substituted by Schedule 1 of this Agreement;
  - 3.1.3 The proposed high speed railway line HS2 shall be added to the "Schedule of Sensitive Surface Features" contained in the Licence and, in accordance with Schedule 3, Clause 3 of the Licence, shall be given due consideration by the Licensee when planning mine layouts.
- 3.2 the Licence shall continue in full force and effect save as modified by Clause 3.1 above.

### **SCHEDULE 1**

#### **Licensed Area**

##### **(Daw Mill Colliery)**

For the purposes of this schedule:

**"Specified Seam"** means such parts of all seams comprising the Warwickshire Thick Coal as lies beneath the surface area of 9,984 hectares or thereabouts shown edged red on Plan D annexed to this Agreement.

#### **Part 1**

1. the two (2) shafts and the drift mine, the approximate locations of which are shown marked on Plan D attached to the Licence, and all other shafts, drifts, adits, roadways and other underground spaces used or occupied at the date of this Licence in connection with the winning, working or getting of Coal from the Specified Seam; and
2. (to the extent not covered by paragraph 1 above) the land shown edged red on Plan D down to a depth, at any point, which is 1,000 metres below the deepest Specified Seam beneath that point.

